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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KIBLER, VIRGINIA M

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/473,638

Applicant(s)

PATEL ET AL.

Examiner

Virginia M Kibler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-8,10-15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10-15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. The amendment received on 5/12/04 has been entered. Claims 1, 3-8, 10-15, and 17-20 remain pending.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 5, 7, 8, 10, 12, 14, 15, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang (*PACS: Basic Principles and Applications*).

Regarding claim 1, Huang discloses a method for partial preprocessing of raw image data at an image acquisition workstation (Page 200, para. 2, lines 1-2) connected to the PACS system (Page 199, para. 1, lines 1-3) including receiving raw image data from an imaging modality at the image acquisition workstation (Page 199, para. 1, lines 1-3), storing predetermined preprocessing functions applicable to the raw image data (Page 219, para. 4), wherein the predetermining preprocessing functions include at least one of a frequency preprocessing function and a contrast preprocessing function (Page 222, para. 6 and Page 223, para. 1-3), applying at least one and fewer than all of the preprocessing functions to the raw image data to form partially preprocessed raw image data (Page 219, para. 4, lines 10-14), wherein at least one of the preprocessing functions is applied to the partially preprocessed raw image data at a

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workstation (Page 225-226, Sect. 8.8.2), transmitting the partially preprocessed raw image data to a PACS network (Page 219, para. 4, lines 1-3), and creating fully preprocessed image data by applying all of the preprocessing functions to the raw image data to form fully preprocessed image data (Page 225-226, Sect. 8.8.2). Huang discloses databases (Sect. 7.1.2-7.1.3; Sect. 8.1; Sect. 8.3.1) but does not appear to explicitly specify a preprocessing and an image database, however, it would be inherent to include a preprocessing database and an image database, the preprocessing database utilized for storing the partially preprocessed raw image data, the image database utilized for storing a fully preprocessed image data. Huang discloses the preprocessing functions are performed by the image acquisition workstation (Sect. 8.7), and does not appear to expressly state any preprocessing functions applied at a display workstation. However, Huang discloses that it is known that a PACS module can function alone as an individual unit (Page 216, Sect. 8.6, para. 1), thereby the image acquisition workstation and the display workstation are the same. Thus, any preprocessing functions applied would be applied at a display workstation. At the time of the invention, it would have been obvious to one of ordinary skill in the art to have modified the applying of preprocessing functions applied to a partially preprocessed raw image data disclosed by Huang to include being performed at a display workstation. The motivation for doing so would have been to prepare the image for an optimal viewing for a self-contained PACS. Therefore, it would have been obvious to modify Huang to obtain the invention as specified in claim 1.

Regarding claim 7, Huang discloses an image acquisition workstation for a PACS (Page 199, para. 1, lines 1-3) and for partial preprocessing of raw image data (Page 200, para. 2, lines 1-2) including a computer (Page. 199, para. 1, line 1), thereby a processing circuit, an imaging

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modality interface for receiving raw image data (Page 199, para. 3, lines 2-4), and a software memory coupled to the processing circuit (Page, 199, para. 1, line 1). The arguments analogous to those presented above for claim 1 are applicable to claim 7.

Regarding claim 14, Huang discloses a medical data network including an imaging modality, an image acquisition workstation and a PACS network interfaced to the image acquisition workstation (Page 200, para. 3, lines 1-5), the PACS network comprising a networked PACS image database, display workstation, and preprocessing database (Page 216, para. 2). The arguments analogous to those presented above for claim 7 are applicable to claim 14.

Regarding claims 3, 10, and 17, the arguments analogous to those presented above for claim 1 are applicable to claim 3, 10, and 17.

Regarding claims 5, 12, and 19, the arguments analogous to those presented above for claim 1 are applicable to claims 5, 12, and 19.

Regarding claims 8 and 15, Huang discloses the raw image data corresponding to an anatomical region, and wherein the at least one preprocessing function applied to form the partially preprocessed raw image data is selected based on the anatomical region (Page 222, para. 3-4).

4. Claims 4, 6, 11, 13, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang (*PACS: Basic Principles and Applications*) as applied to claims 1, 7, and 14 above, and further in view of Takeo et al. (6,231,246).

Regarding claims 4, 11, and 18, Huang discloses applying preprocessing functions including frequency and contrast preprocessing functions (Page 222, para. 6 and Page 223, para.

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1-3). Huang does not appear to specify using a frequency preprocessing function characterized by at least one of a RN, RE, and RT preprocessing parameter. However, Takeo et al. ("Takeo") teaches that it is known that RN, RE, and RT are frequency characteristics (Col. 10, lines 30-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the frequency preprocessing functions disclosed by Huang to include the characteristics taught by Takeo in order to explicitly state certain characteristics as a design choice.

Regarding claims 6, 13, and 20, Huang discloses applying a contrast preprocessing function (Page 222, para. 6 and Page 223, para. 1-3). Huang does not appear to specify using a contrast preprocessing function characterized by at least one of a GT, GA, GC, and GS preprocessing parameter. However, Takeo teaches that it is known that GT, GA, GC, and GS are contrast characteristics (Col. 7, lines 19-24). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the contrast preprocessing functions disclosed by Huang to include the characteristics taught by Takeo in order to explicitly state certain characteristics as a design choice.

### ***Response to Arguments***

5. Applicant's arguments filed 5/12/04 have been fully considered but they are not persuasive.

Summary of Applicant's Argument: The display workstations of Huang do not perform any preprocessing of the image data. The only functions the display workstations perform is the processing of the image data, which is differentiated from the preprocessing of the image data by

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Huang (Page 320). Huang does not teach either a preprocessing or an image database or transmitting partially preprocessed image data for storage in preprocessing database.

Examiner's Response: Huang discloses the preprocessing functions are performed by the image acquisition workstation (Sect. 8.7), and differentiates the preprocessing of the image data and the processing at the display workstation. However, Huang discloses that it is known that a PACS module can function alone as an individual unit in which the display workstations show images from the imaging devices (Page 216, Sect. 8.6, para. 1), thereby the image acquisition workstation and the display workstation are the same workstation. Thus, any preprocessing functions applied would be applied at a display workstation. It would have been obvious to have modified the applying of preprocessing functions applied to a partially preprocessed raw image data disclosed by Huang to include being performed at a display workstation in order to prepare the image for an optimal viewing for a self-contained PACS.

Huang discloses the claimed limitation of applying a preprocessing function to a partially preprocessed raw image data at a workstation (Page 225-226, Sect. 8.8.2). The claim language, "...said predetermined preprocessing functions include at least one of a frequency preprocessing function and a contrast preprocessing function..." requires either a frequency preprocessing function or a contrast preprocessing function. Both a frequency and a contrast preprocessing function are not required by the claim language. Huang discloses storing predetermined preprocessing functions applicable to raw image data including a contrast preprocessing function (Sect. 8.7).

Huang discloses databases (Sect. 7.1.2-7.1.3; Sect. 8.1; Sect. 8.3.1). It would be inherent to include a preprocessing database and an image database, the preprocessing database utilized

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for storing the partially preprocessed raw image data, the image database utilized for storing a fully preprocessed image data.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Contact Information***


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia M Kibler whose telephone number is (703) 306-4072. The examiner can normally be reached on Mon-Thurs 8:00 - 5:30 and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Virginia Kibler can be reached on (703) 308-4072. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Virginia Kibler  
08/08/04

**MEHRDAD DASTOURI**  
**PRIMARY EXAMINER**

